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Some Euphorbiaceæ from Guatemala.

JOHN P. LOTSY.

WITH PLATES XXIV AND XXV.

At the request of Capt. John Donnell Smith I undertook the determination of his last acquired Euphorbiaceæ. After classification the specimens were compared by me with those in the Ryksherbarium¹ of the University of Leiden, Holland, and in the National Herbarium at Washington, D. C.

Euphorbia rubrosperma, n. sp. (§ ANISOPHYLLI, Chamysyceæ Leiospermæ DC. Prod. 15²: 27.)—Tota crispule hirta, caulibus filiformibus carnulosis ad articulationes incrassatis e basi ramulosis. Folia basi valde inaequalia ovata orbiculata irregulariter dentata acuta vel obtusa, stipulis interpetiolaribus lanceolatis ciliatis basi minutissime bidentatis. Cyathia in axillis supremis cymulosa, involucris minutis campanulatis extus hirsutis intus glabris, lobis angustis extus ad margines ciliolatis. Glandulæ 4 exappendiculatæ cyathiformes longiter stipitatæ. Ovarium hirtum, stilis 3 bipartitis non incrassatis sub lente punctulatis trigonis rubellis.

Santa Rosa, Depart. Santa Rosa, alt. 3,000^{ft}, Dec. 1892, Heyde & Lux, no. 4,271.

A small creeping plant with a firm primary root. The plant when dry has small green leaves, here and there becoming red, as do also the involucre of the inflorescences. Length of one of the creeping branches, 5–6^{cm}. Length of leaves 0.5^{cm}. Length of seed 0.06^{cm}.

EUPHORBIA XALAPENSIS HBK. (§ CYTTAROSPERMI DC. Prod. 15²: 53).

San Raphael, Depart. Zacatepéquez, alt. 6,500^{ft}, Febr. 1892, John Donnell Smith, no. 2,617.—San Miguel, Dept. Quiché, alt. 6,000^{ft}, April 1892, Heyde & Lux, no. 3,479.—Laguna di Ayarza, Dept. Jalapa, alt. 8,000^{ft}, Sept. 1892, Heyde & Lux, no. 3,849.—Volcan Jumaytepeque, Dept. Santa Rosa, 6,000^{ft}, Dec. 1892, Heyde & Lux, no. 4,269.

Euphorbia microappendiculata, n. sp. (§ CYTTAROSPERMI.)—Caulis cum ramis oppositis glabris sed ad articulationes

¹To the subdirector of this herbarium, Dr. J. G. Boerlage, I am indebted for much valuable aid and advice.

pauciter pubescentibus fistulosus ad folia adpresse pubescens. Folia integra, inferiora sparsa, superiora opposita vel ternata; inferiora petiolata ovata acutiuscula, superiora lanceolata, glandulis stipularibus obsoletis. Cymæ terminales vel axillares longiter pedunculatæ 3-cephalæ, involucris longiuscule pedicellatis campanulatis hemisphaericis adpresse pubescentibus, lobis triangularibus pauciter fimbriatis. Glandulæ 4 ovatæ valvatæ, appendicibus rotundatis apice obscure cordatis concaviter inclusis. Stili bipartiti. Capsula ignota. Semen ignotum.

A plant two to three feet high. Leaves pinnately veined with seven to ten pair of secondary veins, covered with scattered hairs on upper side, densely covered on lower side with a grey felt, glabrous on the veins. Bracts of inflorescence spatulate, about one-half longer than the cyathia. Length of blade 5^{cm}. Width of blade at broadest place 2.5^{cm}. Length of petiole 1–1.3^{cm}.

Laguna de Ayarza, Depart. Jalapa, alt. 8,000^{ft}, Sept. 1892, Heyde & Lux, no. 3,850.

EUPHORBIA OCYMOIDEA L. (§ CYTTAROSPERMI.)

Rinconcito, Depart. Santa Rosa, alt. 4,000^{ft}, Nov. 1892, Heyde & Lux, no. 4,263.

EUPHORBIA ARENARIA HBK. (§ CYTTAROSPERMI.)

Ojo de Agua, Depart. Santa Rosa, alt. 3,500^{ft}, Dec. 1892, Heyde & Lux, no. 4,262.

EUPHORBIA LANCIFOLIA Schlecht. (§ DICHILII DC. Prod. 15²: 59.)

Rinconcito, Depart. Santa Rosa, alt. 4,000^{ft}, Nov. 1892, Heyde & Lux, no. 4,264.—Naranjo, Depart. Santa Rosa, alt. 3,500^{ft}, May 1892, Heyde & Lux, no. 4,581.

Euphorbia leucocephala, n. sp. (§ ALECTOROCTONI DC. Prod. 15²: 59.)—Frutex glabra juventute lanosa, ramis striatis ad articulationes incrassatis. Folia inferiora verticillata, caetera plerumque ternata vel rarius verticillata; folia longe petiolata, inferiora obovata, superiora oblonga apice mucronata. Dichasia terminalia polycephala. Bractea alba spathulata mucronata involucris triplo vel quadruplo longiora. Cyathia basi externe biglandulata, involucris breve pedicellatis campanulatis hirtis, lobis transverse oblongis ciliatis. Glandulæ quinæ transverse oblongæ, appendicibus integerrimis eis 6-plo longioribus. Stili bipartiti. Capsula glabra profunde trisulcata. Semen ecarunculatum.

Shannon's note says, "a shrub, rather a vinelike shrub. I believe is a vine that grows generally near another (plant) and overtops the companions. Plant 60^{cm}—2.1^m high."

Leaves pinnately veined, veins fourteen to sixteen, covered with extremely few hairs on both sides, rather more along the midrib. Some of the leaves turning red, at least in herbarium specimens. Inflorescence remarkable for its numerous white bracts, which has suggested the specific name of *leucocephala*. Very few of the cyathia have female flowers. Dried styles persistent on top of capsule. Seeds, not entirely ripe, with a dried funiculus, which suggests sometimes a small shriveled carunculus. Blade of lower leaves 6–8^{cm} long, at broadest place about 3.5^{cm} wide. Petiole 2–2.5^{cm} long. Ternate leaves 3–4^{cm} long, at broadest place 1.5–2^{cm} wide. Bracts 1–1.5^{cm} long. Capsule about 0.5^{cm} long and equally broad.

Cuilco, Depart. Huehuetenango, alt. 3,800^{ft}, Dec. 1891, Shannon, No. 305.—Volcan Chingo, Depart. Jutiapa, alt. 4,000^{ft}, Oct. 1892, Heyde & Lux, no. 3,661.—Rio Negro, Depart. Quiché, alt. 3,600^{ft}, Mar. 1892, Heyde & Lux, no. 3,482.—Patzicia, Depart. Chimaltenango, alt. 6,500^{ft}, Febr. 1893, Heyde & Lux, no. 6,377.—PLATE XXIV.

EUPHORBIA DENTATA Michx. (§ POINSETTIÆ DC. Prod. 15²: 71.)

Las Cañas, Depart. Santa Rosa, Nov. 1892, alt. 3,000^{ft}, Heyde & Lux, no. 3,837.

Euphorbia chamaepeplodes, n. sp. (§ TITHYMALI sub-sect. *Esulæ* DC. Prod. 15²: 138.)—Glabra a collo ramosa, caulibus adscendentibus vel erectis, umbellæ radiis tribus. Folia obovata integerrima basi in petiolum attenuata; folia floralia ovata basi obscure cordata sessilia opposita vel ternata. Involucra turbinata, lobis triangularibus margine ciliatis. Glandularum cornua glandulæ latitudini aequilonga. Stili breves bifidi. Capsula glabra profunde trisulcata. Semen ad facies binas internas longitudinaliter sulcatum ad 4 exteriores linea 3–5 fovearum rotundarum exsculptum sub lente totum punctulatum. Caruncula conica.

A very near relative of *Euphorbia chamaepeplus* Boiss. & Gail., perhaps only a variety of it. Only one individual seen. Height of plant 17^{cm}, length of blade 0.6^{cm}, width of blade at broadest place 0.5^{cm}, length of peduncle 0.15^{cm}, length of upper sessile leaves 0.8^{cm}, length of capsule 0.15^{cm}, length of seed 0.1^{cm}.

San Martín, Jilotepeque, Depart. Chimaltenango, alt. 6,000^{ft}, Mar. 1892, Heyde & Lux, no. 3,481.

EUPHORBIA CAMPESTRIS Cham. & Schlecht. (§ POINSETTIÆ.)

Cunén, Depart. Quiché, alt. 6,000^{ft}, April 1892, Heyde & Lux, no. 3,467.

PHYLLANTHUS NIRURI L. (§ EUPHYLLANTHI DC. Prod. 15²: 374.)

Volcan Jumaytepeque, Depart. Santa Rosa, 6,000^{ft}, Dec. 1892, Heyde & Lux, no. 4,270.

CROTON ELUTERIA Benn. (§ ELUTERIÆ DC. Prod. 15²: 514.)

Palin, Depart. Amatitlan, alt. 3,560^{ft}, Feb. 1892, John Donnell Smith, no. 2,616.

Croton eluterioides, n. sp. (§ ELUTERIÆ).—Planta in tota parte juvenili lepidota. Folia penninervia utraque pagina lepidota, limbo ovato integerrimo apice breviter acuminato basi rotundato eglanduloso, petiolo quam limbus 2–14-plo breviori, stipulis triangularibus lepidotis. Racemi axillares foliis multobreviores densiflori basi feminini apice masculini. Calycis lacinia utriusque sexus ovata acuta lepidota. Petala utriusque sexus late ovata non lepidota pilosa. Stamina circa 15, filamentis sparse barbatis. Ovarium 2-merum lepidotum. Stili 3 bipartiti, laciniis repetite bifidis.

Differs from *Croton Eluteria* in the number of stamens, the more repeatedly branched style, the much broader and larger leaves which are shortly in place of longly acuminate.

A bush about 12^{ft} high. Leaves when young covered on both sides with silvery scales; these gradually disappear from the upper surface almost entirely, while the lower surface contains on old leaves so few scales that in herbarium specimens, owing to the brown color of the leaf, these appear at first sight rusty-lepidote instead of silvery-lepidote. As far as the specimens at hand go, the number of female flowers seems to vary between one and two at the base. The number of male flowers also is limited. Ripe capsule unknown. Length of blade 10^{cm}, width of blade at broadest place 0.45^{cm}, length of petiole 0.5^{cm}, length of largest capsule found 0.21^{cm}, width of largest capsule found 0.15^{cm}.

Santa Rosa, Depart. Santa Rosa, alt. 3,000^{ft}, June 1892, Heyde & Lux, no. 3,470. —PLATE XXV.

Croton Guatemalensis, n. sp. (§ ELUTERIÆ).—Planta in tota parte juvenili lepidota. Folia penninervia utraque pagina lepidota, limbo ovato integerrimo apice breviter acuminato basi rotundato eglanduloso, petiolo quam limbus 3-4 plo breviori, stipulis obsoletis. Racemi graciliter spicaeformes foliis multo longiores densiflori basi feminini apice masculini. Calycis lacinia utriusque sexus ovata acuta lepidota. Petala utriusque sexus ovato-lanceolata non lepidota margine barbata. Stamina circa 15, filamentis glabris. Ovarium 2-3-merum lepidotum. Stili 3-partiti, laciniiis repetite bifidis.

Tree 20-25^{ft} high. Flowering branches of very graceful aspect. Leaves when young covered on both sides with silvery scales; these gradually disappear from upper side so that the older leaves of herbarium specimens appear brown above and silvery beneath, a considerable number of scales remaining however on upper surface. As far as the specimens at hand go, every inflorescence seems to have a solitary female flower with a long peduncle at its base. As is seen from the plate, the male flowers drop pretty early and long before the capsule is ripe, but this may be partly due to the drying. In the female flower a ring-wall can be seen with five episepal bifid glands. The male flower is densely clothed with hairs on the receptacle. Ripe capsule unknown. Seeds (not entirely ripe) smooth.

Santa Rosa, Depart. Santa Rosa, alt. 4,000^{ft}, May 1892, Heyde & Lux, no. 3,035.—PLATE XXV.

JULOCROTON TRIQUETER Baill.

Cerro Gordo, Depart. Santa Rosa, alt. 3,500^{ft}, August 1892, Heyde & Lux, no. 3,838.

ACALYPHA SCHLECTENDAHLIANA Müll. Arg. (§ EUACALYPHÆ DC. Prod. 15²: 803.)

Barranca de Eminenzia, Depart. Amatitlan, alt. 1,400^{ft}, Feb. 1892, John Donnell Smith, no. 2,618.

ACALYPHA CANCANA Müll. Arg. (§ EUACALYPHÆ.)

Rio de Los Esclavos, Depart. Santa Rosa, alt. 2,500^{ft}, Feb. 1893, Heyde & Lux, no. 4,580.

ACALYPHA MACROSTACHYA Jacq., var. **SIDÆFOLIA** Müll. Arg. (§ EUACALYPHÆ.)

Pansamalá, Alta Vera Paz, alt. 3,800^{ft}, Oct. 1888, von Türckheim, no. 1,417.

TRAGIA VOLUBILIS Müll. Arg. (§ EUTRAGIÆ DC. Prod. 15²: 932.)

Estanzuela, Depart. Santa Rosa, alt. 2,500^t, Aug. 1892, Heyde & Lux, no. 3,846.

Tragia Guatemalensis n. sp. (§ EUTRAGIÆ.)—Frutex scandens pube brevi et pilis urentibus dense obsita. Petiölus limbo foliorum 2–4-plo brevior, limbo basi palmatinervio et cordato apice breviter acuminato. Racemi longe pedunculati non bipartiti basi flores duos femininos apice flores plures masculinos gerentes. Bractea feminina aequaliter tripartita; bractea masculina tripartita, lobo medio longiore. Pedicellum masculinum articulatum, parte persistente bractea longiore.

Calycis femininæ lacinia 6 lanceolata, calycis masculinæ lacinia 3. Stamina 3.

Leaf palmatinerved at the base with about five veins, the middle one strongest forming the midrib of the leaf. Secondary veins pinnate, three to four pairs. Inflorescence about the length of the petiole. The two female flowers have such long peduncles that they reach about as high as the top of the male part of the inflorescence. Fruit densely covered with bristly hairs. Seeds globular, pale yellow with brown irregular dots. Length of limb of leaf 0.73^{cm}. Width of limb of leaf at broadest place 0.3^{cm}. Length of petiole 0.18^{cm}. Diameter of fruit 0.1^{cm}. Diameter of seed 0.4^{cm}.

Chicacao, Depart. Alta Verapaz, alt. 3,500^t, April 1889, J. Donnell Smith, no. 1,763.

JATROPIA CURCAS L. (§ CURCAS DC. Prod. 15²: 1,076.)

Santa Rosa, Depart. Santa Rosa, alt. 3,000^t, May 1893, Heyde & Lux, no. 4,582.

HURA CREPITANS Müll. Arg.

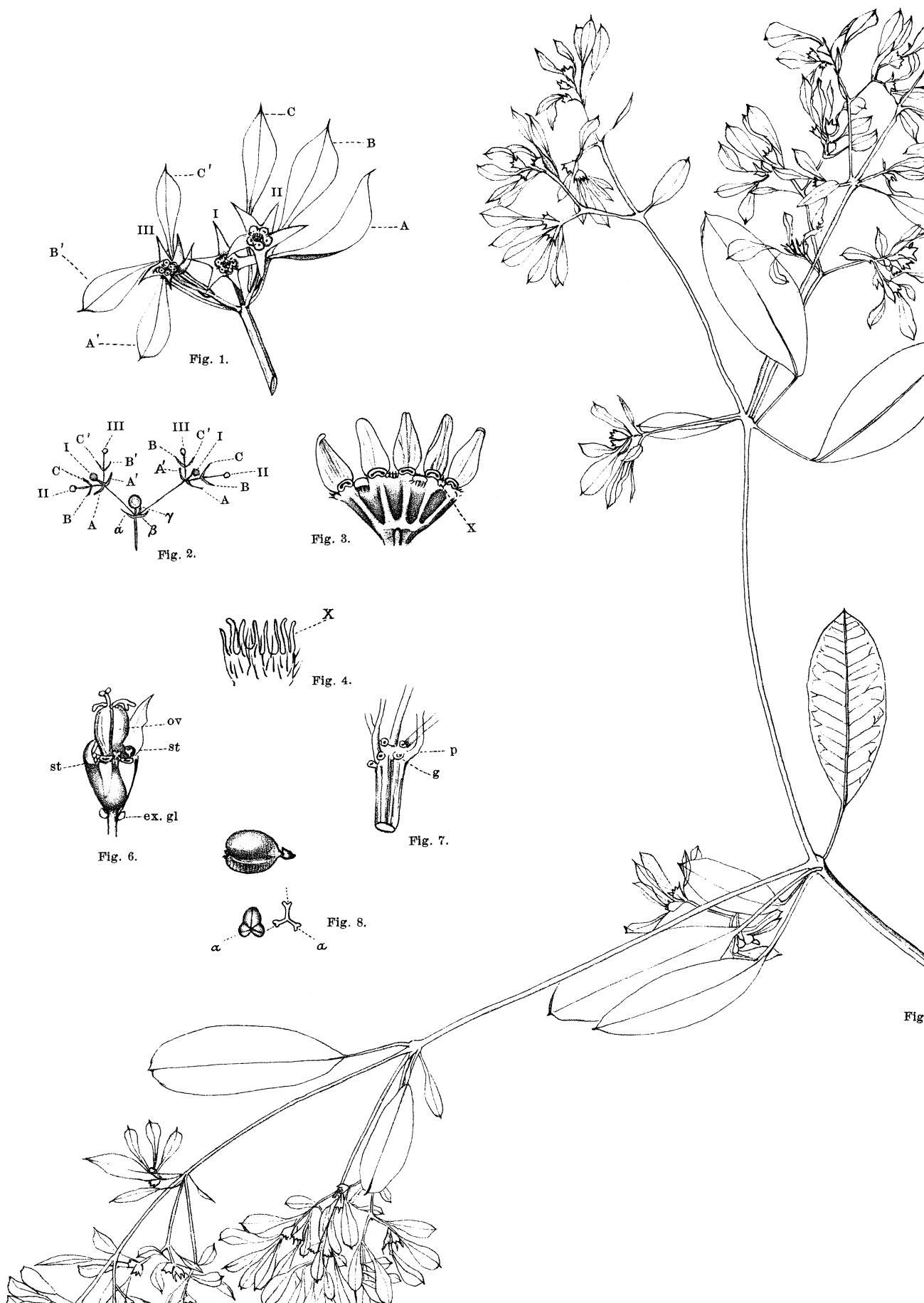
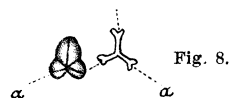
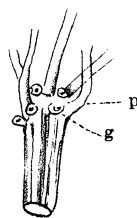
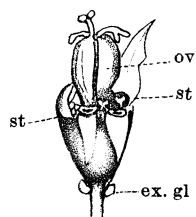
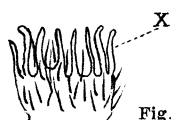
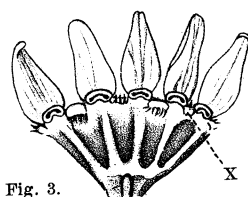
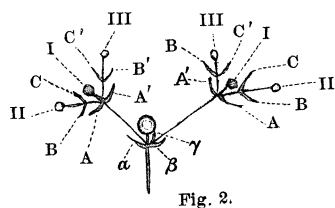
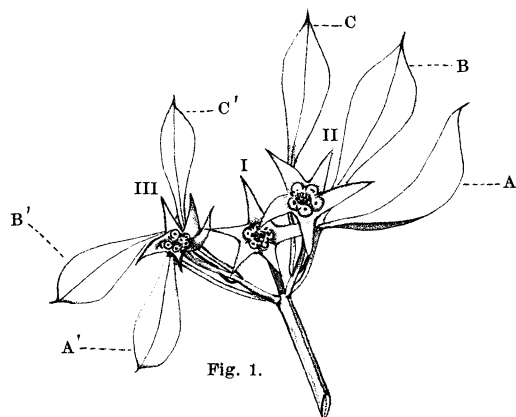
Sacapulas, Depart. Quiché, alt. 3,800^t, April 1892, Heyde & Lux, no. 2,901.

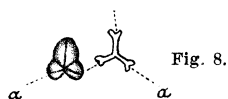
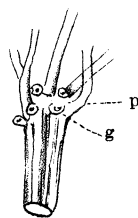
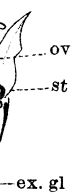
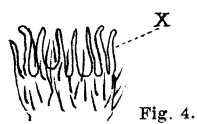
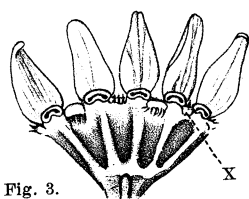
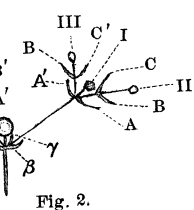
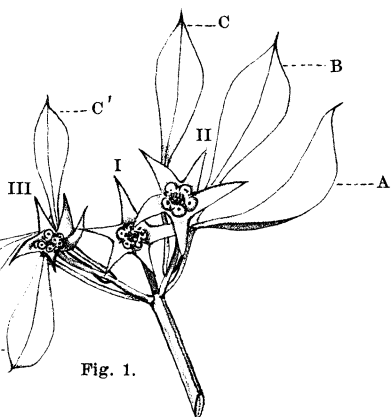
Johns Hopkins University.

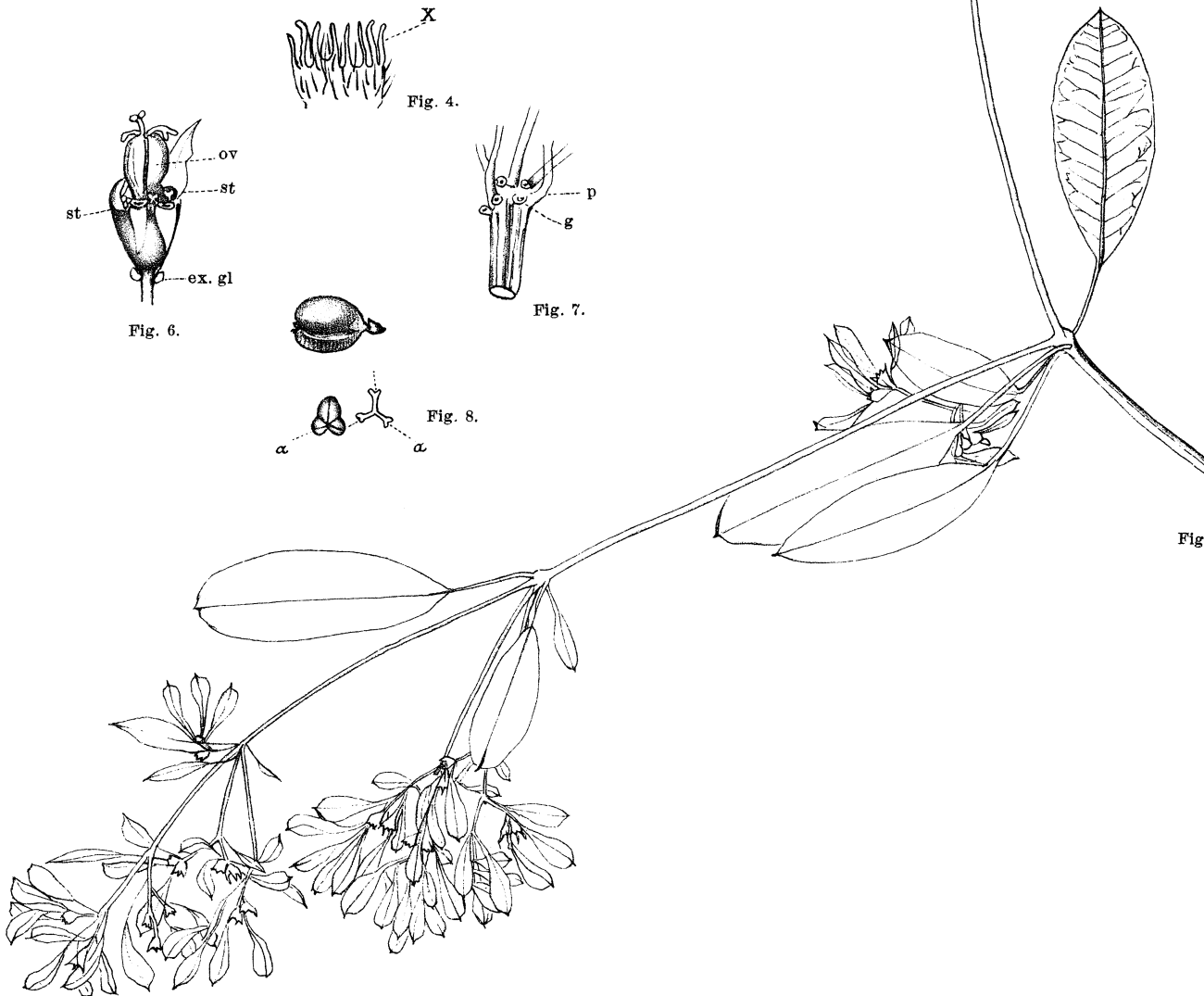
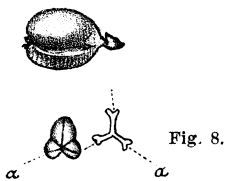
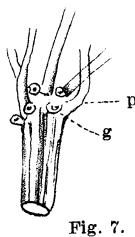
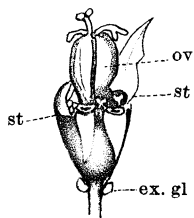
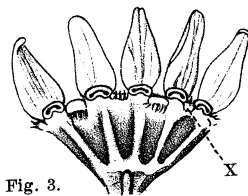
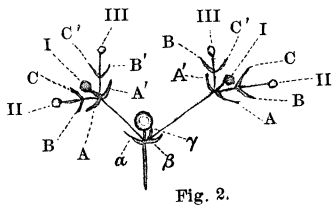
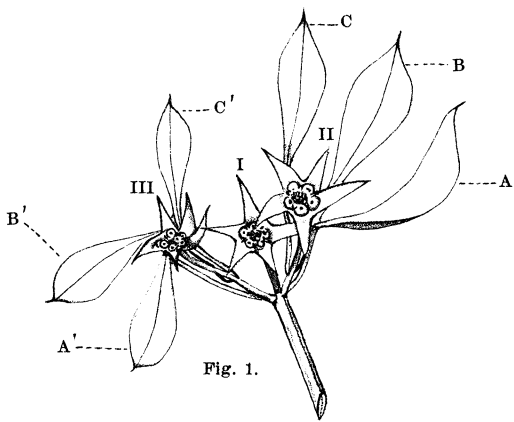
EXPLANATION OF PLATES XXIV AND XXV.

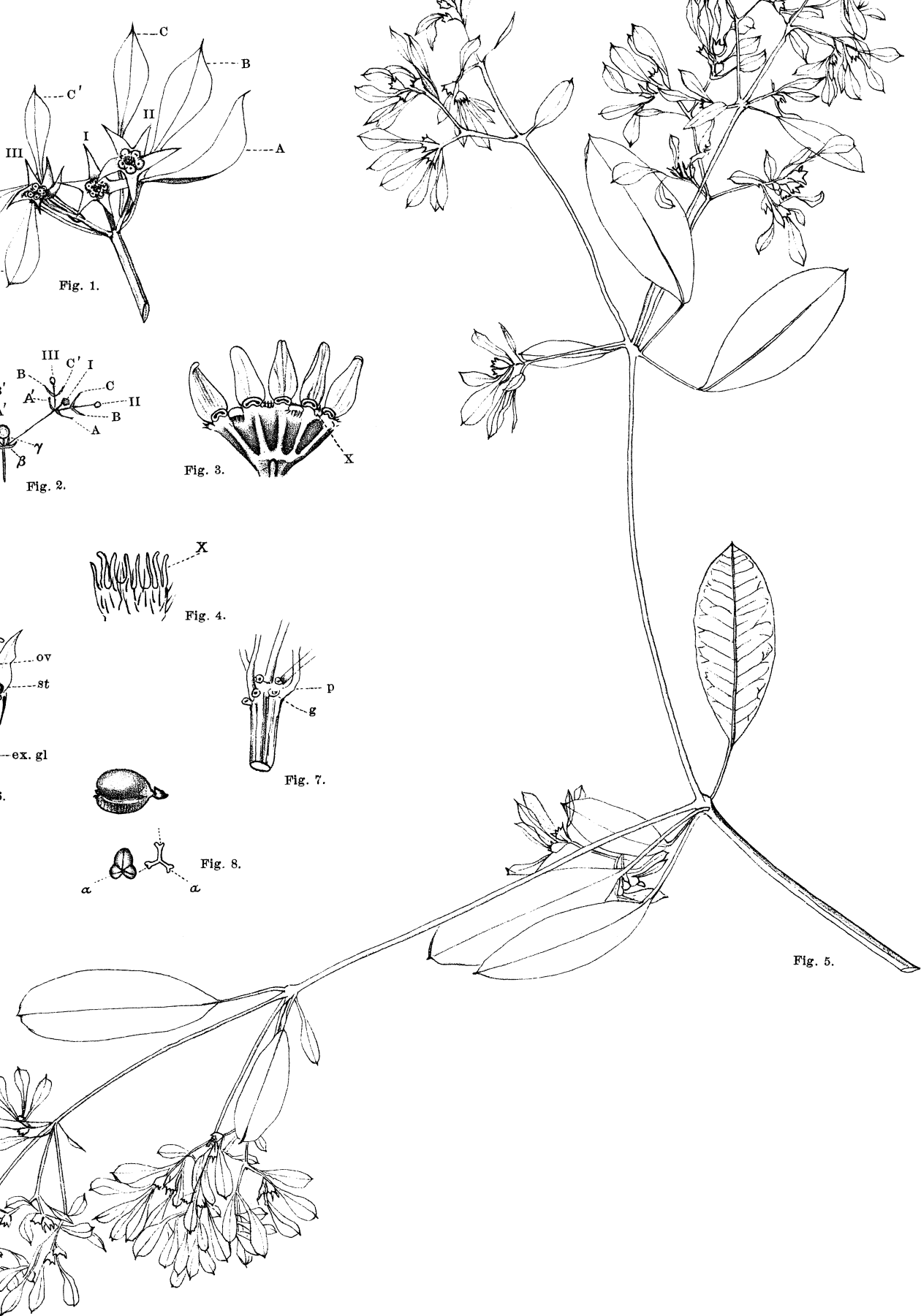
PLATE XXIV. *Euphorbia leucocephala*.

Fig. 1. Dichasium, the length of the lateral cyathia exaggerated to make relations plainer.—Fig. 2. Diagram of dichasium.—Fig. 3. Involute from inside, showing lobes, *x*, and appendiculate glands.—









EUPHORBIA LEUCOCEPHALA. nov. spec.



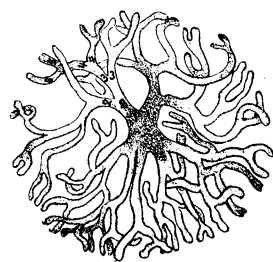




Fig. 1.



Fig. 7.

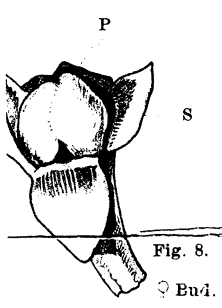


Fig. 8.



Fig. 9.

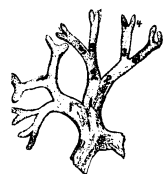


Fig. 10.



Fig. 3.

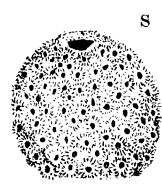


Fig. 4.

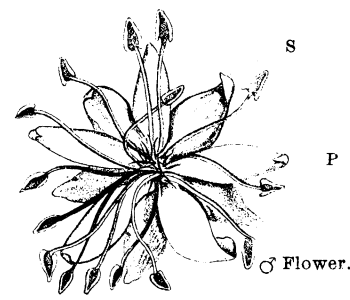


Fig. 5.

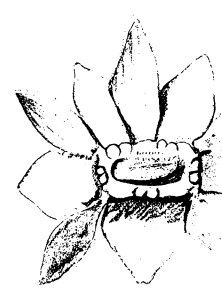


Fig. 6.

J. P. LOTS, DEL.

CROTON ELUTERIOIDES nov. spec. et CROTON GUATEMALENSIS nov. spec.



Fig. 2.

Fig. 1.

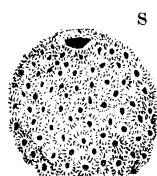


Fig. 4.

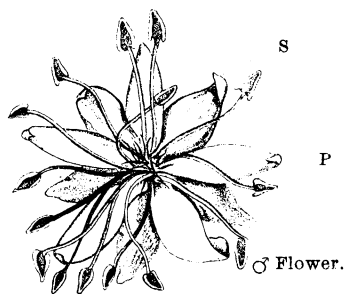


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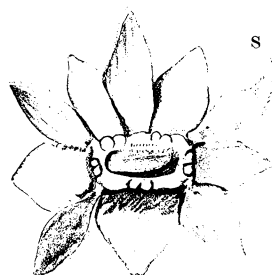


Fig. 6.

Perianth of ♀ Flower.

A. H. S. & Co. Lith. Boston. 1899

CROTON ELUTERIOIDES nov. spec. et *CROTON GUATEMALENSIS* nov. spec.

Fig. 4. Enlarged fimbriated lobe of involucre.—Fig. 5. Flowering branch, natural size.—Fig. 6. Cyathium with one female, *ov*, and several male flowers, *st*, showing extracyathial glands, *ex. gl.*—Fig. 7. Node; only the petioles of the leaves drawn, showing stipulate glands.—Fig. 8. Capsule showing position of styles.

PLATE XXV.

Figs. 1–6, *Croton Guatemalensis*.

Fig. 1. Flowering branch, natural size.—Fig. 2. Styles, enlarged.—Fig. 3. Ovary in longitudinal section, enlarged.—Fig. 4. Ovary enlarged; *s*, indicates the place where the styles were inserted.—Fig. 5. Male flower, enlarged; *S*, sepals, *P*, petals.—Fig. 6. Female flower after removal of ovary, enlarged; *S*, sepals; *P*, petals..

Figs. 7–10, *Croton eleuterioides*.

Fig. 7. Young inflorescence natural size.—Fig. 8. Female flower in bud enlarged; *P*, petal, *S*, sepal.—Fig. 9. Petal from female bud.—Fig. 10. One style, the two others cut off.